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1 Introduction

The allocation of scarce resources is at the very heart of economic and political theory. According to Robbins in his classic *Essay on the Nature & Significance of Economic Science*, economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses.¹ Political theories on distributive justice point in that same direction by focusing on a fair or just allocation of goods in society.²

By contrast, such a pre-eminent role for scarcity and allocation issues seems to be lacking in legal doctrine on public law. This may be considered remarkable since several scholars have linked public law with allocation issues. For example, the German legal philosopher Radbruch found the dividing line between private law and public law in the two kinds of Aristotelian justice, corrective justice and distributive justice: 'Die ausgleichende Gerechtigkeit ist die Gerechtigkeit des Privatrechts; die austeilende Gerechtigkeit ist die Gerechtigkeit des öffentlichen Rechts.'³ Although this distinction between corrective and distributive justice has been criticized as defining the distinction between private and public law,⁴ the idea of corrective justice is still present in private law, for example in contract law.⁵ Conversely, many areas of public law, such as telecommunications law, environmental law, refugee law and social security law, deal with the allocation of scarce resources in one way or another.⁶ Once abstracting from these specific areas, however, the so-called *allocative*⁷ function of public law seems to be overlooked nowadays in legal doctrine.⁸ Therefore, some authors have recommended this allocative function to be reinforced in the general analysis of public law.⁹

In order to take up this challenge, it seems useful to start with an area of public law where these allocation issues are very explicit. The most appropriate area for this analysis is the area of so-called 'limited public rights'. These limited public rights occur in different areas of public law, e.g. telecommunications law, gambling law and subsidy law, but have in common that the number of individual rights available for grant is limited in advance to a maximum.¹⁰ Whenever the number of applicants exceeds this maximum, these scarce rights should be granted by means of an allocation procedure, like an auction or a

lottery.

From a general public law perspective, the relevant issue is which general rules apply to the grant of limited public rights. Because of their general nature, these so-called ‘allocation rules’ should be constructed as a direct consequence of general principles of public law. However, legislation and case-law show that there is still a gap between general principles of public law and allocation issues. Even although some (semi-)general allocation rules can be found in legislation or case-law, this set of general allocation rules is far from complete. In other words, the existing set of general allocation rules is rather fragmentary. Therefore, additional tools outside legal analysis are necessary in order to identify general allocation rules.

This article takes recourse to economic theory to bridge this gap. Its aim is to answer the question how economic theory can be useful in deriving general allocation rules from general principles of public law. There are several reasons to have recourse to economic theory to bridge the gap. First, unlike legal theory, economic theory provides for *general* terminology on the allocation of scarce resources with concepts like efficiency and allocation properties. These general concepts might be helpful in expanding existing allocation rules to *general* allocation rules. Next, the general allocation rules identified in case-law until now, seem to assume some kind of rationality among applicants.¹¹ This rationality assumption is fundamental to economic theory, so this approach might be a useful tool in explaining allocation rules developed until now.¹² Finally, in line with this explanatory power of economic theory, it might have predictive power as well: if existing allocation rules can be understood with reference to certain (economic) assumptions, then economic theory shows which other allocation rules logically derive from these assumptions and therefore should be part of a coherent legal system.

Before starting this exercise, it is essential to distinguish the merits of economic theory as compared to legal theory. Since – as Robbins stated – economic theory is *neutral* with regard to the ends of allocation,¹³ the issue which allocation objectives are to be achieved and which allocation is just, remains outside the scope of economics. In that respect, economic theory does not precede public law, but succeeds it. However, once the allocation objectives have been established in public law, economic theory shows which allocation rules contribute to the attainment of these objectives and which do not. Thus, economic theory may serve as a tool to understand and to criticize allocation rules, given the chosen allocation objectives.

This article has been structured as follows. After characterizing the grant of limited public rights briefly (section 2) and sketching the first cautious steps in EU case-law in the development of general allocation rules (section 3), the allocation of limited public rights is dealt with from an economic perspective (section 4). Section 5 illustrates how these economic results may be helpful in deriving general allocation rules from general legal principles in a logical and consistent manner. The following section 6 explores the relevance of the identified general allocation rules for the analysis of public law in general. Section 7 contains some concluding remarks.

2 Limited public rights: a characterization

For the purposes of this article, public rights are defined as individual rights granted by a public authority. Examples of these public rights are authorizations, permitting its holder to exercise an activity otherwise prohibited, and financial grants (subsidies). For the grant of any such public right, an applicant should satisfy one or more *granting criteria*. These granting criteria are absolute in the

sense that the grant of a public right to a certain applicant only depends on the question whether this applicant satisfies the granting criteria. In other words, it does not matter whether other applicants satisfy these criteria as well.

Whenever the number of public rights available for grant is limited to a maximum M , sometimes referred to as a ceiling,¹⁴ these public rights are called *limited*.¹⁵ This maximum may vary from one exclusive right to an arbitrary number of rights, as long as the number of rights available for grant is limited to a maximum. Given this maximum, it matters whether the right to be allocated is divisible or indivisible. If a right is divisible, it can be divided into arbitrary small pieces. As a result, any applicant may receive a positive (but small) amount of this right. For example, financial grants are divisible, since money can be awarded in arbitrary small pieces. If it is impossible to divide a public right into arbitrary small pieces or if division would destroy its value, this right is called *indivisible*.¹⁶

If the number of applicants N satisfying the granting criteria for some public right exceeds the maximum M , limited public rights are called *scarce*. In those circumstances, public authorities should apply an allocation procedure P in order to grant these scarce rights. Such a grant of limited public rights is called an *allocation*. Examples of allocation procedures are a lottery, allocation in order of receipt of the applications ('first come first served'), a comparative assessment ('beauty contest' or 'tender'), an auction, an equal division and a proportional division. Every allocation procedure is characterized by one or more allocation criteria. Unlike granting criteria, these allocation criteria involve *relative* comparison of applications: an application should perform better on the allocation criteria than other applications. In order to execute this comparison, all applications should be submitted before a certain moment.

The allocation of limited public rights is an exercise of distributive justice par excellence. According to Weinrib, any exercise of distributive justice consists of three elements: (1) the benefit or burden being distributed, (2) the persons among whom it is distributed, and (3) the criterion according to which it is distributed.¹⁷ Applying a distribution or allocation criterion inevitably results in the rejection of some applications that satisfy all granting criteria. In other words, allocation results in subordination of applications.¹⁸

3 A legal perspective to limited public rights

Given this general characterization of limited public rights, the relevant legal question becomes whether there are general rules applying to *any* allocation of limited public rights. These general allocation rules should take into account the general characteristics of allocation issues, e.g. the ceiling M and the allocation procedure P . Together, these general allocation rules can be said to constitute *general allocation law* as a part of general public law.

Given the lack of legal attention to the allocation function of public law, it should not be very surprising that general legislation on administrative law is not a useful source of general allocation law, neither at a European level nor at a national level.¹⁹ Instead, the ordinary legal approach to the grant of public rights seems to be that these rights should be granted to any applicant who meets the granting criteria.²⁰ This approach and the corresponding decision rules are, however, insufficient when granting a limited number of public rights: whenever the number of applicants exceeds the number of rights available, at least one application satisfying all granting criteria should be rejected.

In the absence of general allocation rules in legislation, general legal principles may serve as a relevant source of allocation law. Recent case-law of the Court of Justice of the European Union²¹ shows that this holds in particular for the

principles of legal certainty and equal treatment (equality). The principle of *legal certainty* requires in general the rules of law to be clear, precise and predictable as regards their effects, in particular where they may have unfavourable consequences for individuals and undertakings.²² The principle of equal treatment, according to the Court, requires that comparable situations must not be treated differently and that different situations must not be treated in the same way, unless such treatment is objectively justified.²³ In order to be objectively justified, a difference in treatment should be justified by a legitimate objective (legitimacy), be appropriate for securing the attainment of this legitimate objective (suitability), and not go beyond what is necessary to attain this objective (necessity). The prohibition of discrimination on grounds of nationality²⁴ and the consequent fundamental freedoms of movement²⁵ can be considered as specific expressions of this principle of equality.²⁶

Some scholars have claimed that the principle of equality or non-discrimination has relevance in cases of scarcity only.²⁷ Others have doubted this claim,²⁸ but it should be admitted at least that questions of equality are of particular significance when allocating scarce resources.²⁹ The same holds for the principle of legal certainty: since inevitably some applications should be rejected although they satisfy all granting criteria, every allocation of limited public rights has unfavourable consequences for at least one applicant. Therefore, the need for clear, precise and predictable allocation rules should be evident from the outset. Despite this potential importance of both principles to the allocation of limited public rights, these principles do not refer in their wording explicitly to allocation settings. Therefore, there remains some gap between these general legal principles and allocation issues. However, by *translating* general legal principles into more specific allocation principles, it may be possible to construct allocation rules as a direct consequence or *corollary* of a general legal principle. To some extent, this ‘corollary approach’ is already visible in the Court’s case-law. For example, in *Ottica New Line*, the Court considers that restrictions on the freedom of establishment may be justified by the legitimate objective of the protection of public health. This general objective may seek, more specifically, to ensure even distribution of healthcare providers throughout the national territory.³⁰ In fact, the Court translates a general legitimate objective (‘public health’) into a specific allocation objective (‘even distribution’) in order to evaluate a maximum number of authorizations for healthcare providers. Another example of this corollary approach is the obligation of transparency.³¹ This obligation, sometimes referred to as a principle, is considered to be a corollary of the principle of equality.³² This obligation requires a public authority to ensure, for the benefit of any potential applicant, a degree of advertising sufficient to enable the right³³ to be opened up to competition and the impartiality of the award procedures to be reviewed.³⁴ In the absence of any call for competition, the award of this right may amount to indirect discrimination on grounds of nationality.³⁵ In fact, the obligation of transparency can be considered a tailor-made expression of the principle of equality in an allocation context, since this obligation recognizes the need for applications to be submitted before a certain moment in order to be compared with each other.

Under the Court’s corollary approach allocation rules are not being derived from one legal principle exclusively. For example, in *Costa and Cifone*, the Court derives the requirement that the conditions and detailed rules of a tendering procedure must be drawn up in a clear, precise and unequivocal manner from *five* overarching principles: the freedom of establishment,³⁶ the freedom to provide services,³⁷ the principle of equal treatment, the obligation of

transparency and the principle of legal certainty.³⁸ As a result, the attempts in case-law to construct an allocation rule as a corollary of a general legal principle may seem rather fragmentary and even arbitrary until now. As a consequence, it is not clear for potential applicants which allocation rules will apply to the grant of limited public rights. Therefore, it is necessary to embed this deductive process in a more consistent framework.

4 Bridging the gap: economic theory

Economic theory might provide for such a consistent framework to derive general allocation rules from general principles, since it contains general concepts and results on the allocation of scarce resources. Such recourse to economic theory is not new with regard to the allocation of limited public rights. In fact, Ronald Coase's founding articles in the economic analysis of law, 'The Federal Communications Commission' (1959) and 'The Problem of Social Cost' (1960),³⁹ address exactly this issue of allocation of scarce resources by public authorities. What is new, however, is the function of economic theory to identify and explain general allocation rules and thereby bridge the gap between the allocation of scarce resources and general principles of public law.

Several branches of economic theory deal with the allocation of scarce resources explicitly, like resource allocation theory⁴⁰ and auction theory.⁴¹ In short, resource allocation theory analyzes general properties of allocation mechanisms. These properties can be concentrated around some central ideas, like efficiency, equality and solidarity.⁴² Resource allocation theory provides for some intuitive and elementary properties *any* allocation procedure might satisfy and explains the elementary relationships between those properties. Since resource allocation theory deals with properties of allocation mechanisms in general, it does not always take into account strategic considerations of participants in these allocation mechanisms.⁴³

The well-known rationality assumption,⁴⁴ holding that parties maximize their individual welfare, does not come into play until allocation mechanisms are considered as strategic games. This holds for game theory in general⁴⁵ and for auction theory in particular.⁴⁶ An auction is usually considered to be an allocation procedure with the allocation criterion being a financial bid. The results of auction theory, however, may be relevant for other allocation procedures as well. For example, allocation in order of receipt of the applications can be considered as a 'waiting line auction' in which the applicants' waiting times are their bids.⁴⁷ If an allocation procedure contains more allocation criteria than the price only, this procedure can be considered a multidimensional auction.⁴⁸

Considering the allocation of limited public rights from a game-theoretic perspective, the set of players consists of any party that might satisfy the granting criteria and therefore can be considered a potential applicant. Since the object to be allocated is a *right* (instead of an obligation), any potential applicant assigns a positive value $v > 0$ to that right. This value, which represents the applicant's willingness to pay for this right, may vary among potential applicants, for example because of differences in the cost structure of the applicants' firms. Auction theory traditionally distinguishes two auction models, the private values model and the common value model. In case of private values, every bidder knows his own value, but this value is unknown to other bidders as well as to the allocating authority. By contrast, in case of common values, the unknown value of the right is the same to everyone, but bidders have different private information about this true value.⁴⁹ In reality, auctions are not exclusively private value or common value, but share characteristics of both

models.⁵⁰

Auction theory shows that optimal bidding behaviour, i.e. bidding behaviour in which rational bidders maximize their individual welfare, may depend on the number of available rights M , the number of applicants N , the allocation procedure P and the values v bidders assign to the rights. For example, in a first-price auction in which the winning bidder pays his own bid for the right at issue, an applicant's optimal bid depends on the number of applicants N and the estimated values other bidders assign to this right.⁵¹ By contrast, in a second-price auction in which the winning bidder pays the highest losing bid, an applicant does not need this information to determine his optimal bid; this optimal bid is equal to his own value.⁵²

Auction theory does not only guide rational bidders in determining their optimal bids. Moreover, it suggests which information should be made available by allocating authorities to facilitate optimal bidding behaviour. Besides, auction theory shows whether allocating authorities may achieve their own allocation objectives, given the choice for some allocation mechanism. The most prominent objectives in auction theory are efficiency and revenue maximization. Efficiency implies that the rights are awarded to the parties who value them most, whereas revenue maximization holds that all the profits of the allocation flow to the allocating authority.⁵³ In an auction, efficiency and individual welfare maximization may coincide under certain conditions.⁵⁴ For example, in an ascending-bid auction, any rational bidder will increase his bid until this bid exceeds his (private) value. As a result, the right is awarded to the bidder with the highest value at a price equal to the second-highest value, since the last competing bidder drops out once this price level has been reached.⁵⁵ Such an efficient outcome is guaranteed neither in a lottery nor under allocation in order of receipt of the applications ('first come, first served'). With regard to rights giving access to a certain market, auction theory shows the need of distinguishing the above-mentioned efficiency of the allocation (allocative efficiency) from efficiency of the so-called aftermarket. Whereas allocative efficiency deals with the values of the bidding producers only, efficiency of the aftermarket takes into account both producer and consumer surplus. As a result, allocative efficiency does not need to coincide with efficiency of the aftermarket. For example, if an incumbent wins a second licence in an auction instead of a new entrant, the monopolistic market is maintained, whereas consumers might have profited from a duopolistic market.⁵⁶

In sum, allocation theory and auction theory provide us with a set of general concepts and results on the allocation of scarce resources. Although these results should be understood within the set of assumptions and definitions guiding the underlying theoretical models, allocation theory might be helpful in deriving general allocation rules from general legal principles by bridging the gap between these rules and principles.

5 Some general allocation rules

The corollary approach identified in section 3 requires allocation rules to be constructed as a corollary of a legal principle. In the following, some general allocation rules are considered in their relation to general legal principles with reference to results from allocation theory. These allocation rules do not aim to constitute a complete set of general rules of allocation law, but merely clarify the intended approach.

Equality: equal treatment

Section 3 mentioned already that, according to the Court's case-law, the principle of equality implies an obligation of transparency, requiring a sufficient degree of prior advertising. Although allocation theory does not underlie this rule explicitly, this rule aims to promote competition and therefore an efficient outcome. What is more, allocation theory might be helpful in clarifying *which* information should be made available in advance in order to ensure that any interested party may take the decision to apply on the basis of all the relevant information. In fact, there seem to be good reasons to take recourse to auction theory, since the Court's referential point of 'reasonably informed tenderers exercising ordinary care'⁵⁷ assumes some kind of rational and informed bidders. In this respect, auction theory shows that the size of the ceiling M , the allocation procedure P and the number of bidders N might influence the undertakings' bidding behaviour. Therefore, economic analysis provides for arguments to include this kind of information in the prior advertising.

Given that the number of applicants N satisfying the granting criteria exceeds the ceiling M , allocation theory shows that equal treatment of these applicants is possible as long as these rights are divisible. Under that condition, any applicant can be awarded the same amount M/N . In case of indivisible rights, however, such an equal outcome is impossible, unless the rights are not awarded at all.⁵⁸ The need to allocate this right (efficiency)⁵⁹ might be considered a specific allocation objective justifying the denial of equal *outcomes*. In short, allocation theory shows which allocation procedures are suitable to guarantee equal outcomes and which procedures are not.

If there is a need to distinguish between applicants that have been admitted to the allocation procedure, then equal treatment of equals translated into an allocation context requires applicants with the same score on the allocation criteria to be treated equally. In case of a tie, a lottery may bring relief provided every applicant has equal probability to win. Again, allocation theory shows which allocation procedures are suitable to attain a certain allocation objective. Moreover, allocation theory provides for another relevant allocation property known as *impartiality* or anonymity. An allocation procedure is impartial if an exchange of the scores of two applicants implies an exchange of their shares in the outcome. In other words, if an allocation procedure is impartial, then the resulting allocation depends on the scores of the applicants only, hence not on their identities. As such, this allocation property of impartiality can be considered a specified expression in an allocation context of the general legal principle that a public authority shall perform its duties without prejudice.⁶⁰ Furthermore, economic theory shows that impartiality implies equal treatment of equal scores: if an allocation procedure is impartial, it respects equal treatment of equal scores as well (but not vice versa).⁶¹ As a consequence, if a coherent legal system requires allocation procedures to be impartial, then this legal system should require allocation procedures to respect equal treatment of equal scores as well.

Equality: unequal treatment

We saw in section 3 that the general principle of equality requires any unequal treatment of equals to be justified objectively. In particular, any such unequal treatment must be justified by a legitimate objective (legitimacy), must be appropriate for securing the attainment of this legitimate objective (suitability), and should not go beyond what is necessary to attain this objective (necessity). First of all, allocation theory does not tell us which allocation objectives are legitimate. At this point, public law precedes economic theory: the legitimacy of

allocation objectives should be established without reference to economic theory. In this respect, it is relevant to note that the Court does not accept grounds of an economic nature as legitimate reasons justifying a restriction to fundamental freedoms.⁶² This does not mean that considerations of efficiency are completely irrelevant in the choice of allocation criteria. This point can be clarified with an example from telecommunications law. According to the Authorization Directive, Member States may allow their administrative authorities to impose fees for the rights of use for radio frequencies which reflect the need to ensure the optimal use of these resources.⁶³ In *Belgacom*, the Court recalls that the authorization to use public property which constitutes a scarce resource enables the holder of that authorization to make significant economic gains and grants that holder advantages as compared with other operators who are also seeking to use and exploit that resource. This justifies imposing a charge which reflects the value of the use of the scarce resource at issue.⁶⁴ In other words, an optimal or efficient use of scarce resources is considered to be a legitimate allocation objective, but this allocation rule does not follow from economic theory. At most, economic theory reminds legal doctrine to use the term 'efficiency' carefully, since this economic term may have different meanings (cf. section 4).

With respect to the requirement of suitability, allocation theory is far more relevant: it provides for arguments whether an allocation procedure is appropriate to attain a chosen allocation objective, as we saw already with regard to equal division. The Court seems willing to accept such allocation-theoretic arguments. For example, it has considered that the fixing of a fee by reference to the amounts raised through an auction, may be an *appropriate* method for determining the value of radio frequencies, since these amounts bear some relation to the foreseeable profits from the radio frequencies concerned.⁶⁵ At the same time, it should be borne in mind that – according to auction theory – an auction is not always an *appropriate* method to achieve this allocation objective of efficiency. In that respect, economic theory might criticize case-law which neglects essential assumptions underlying economic results.

Finally, allocation theory does not seem to be very relevant with regard to the necessity requirement: it does not provide for arguments why an allocation procedure is more or less restrictive than another allocation procedure. At most, allocation procedures with a pricing rule, i.e. requiring applicants to pay their bids, may be considered more restrictive than allocation procedures without a pricing rule. In *Bressol*, the Court doubts whether a selection process for medical students based not on the aptitude of the candidates but on chance is necessary to attain the legitimate objective of maintaining a balanced high-quality medical service.⁶⁶ This doubt does not seem to follow from arguments derived from economic theory, but rather from arguments derived from theories on distributive justice ('merit') that come into play when making a choice between different allocation procedures.

Legal certainty: amending the allocation rules

The above-mentioned allocation rule that all the relevant information on the allocation should be made public in advance, is constructed in the Court's case-law as a corollary of both the principle of equality and the principle of legal certainty. One might expect the necessary counterpart of this requirement to be that allocation rules may not be amended afterwards. However, case-law shows a more subtle approach: allocating authorities may not amend their allocation rules during or after the submission period to the *detriment* of one or more

applicants.⁶⁷

A more specific expression of this principle of legal certainty can be found in Dutch subsidy law. This semi-general allocation rule⁶⁸ holds that if a reduction of the subsidy ceiling is notified after the start of the application period, this notification shall not affect applications previously submitted.⁶⁹ This legal provision is the counterpart of the legal provision requiring a subsidy ceiling to be notified before the start of the application period.⁷⁰ Both provisions have a basis in the principle of legal certainty: any applicant should be able to take into account the possibility of his application being rejected by single reference to the ceiling, even if he satisfies all granting criteria.⁷¹

At close reading, this legal provision in subsidy law is more far-reaching than its above-mentioned equivalent in case-law: the provision in subsidy law assumes that a reduction of a ceiling can *never* be advantageous to applications previously submitted. Economic theory shows in which cases this assumption is justified, i.e. if the allocation procedure satisfies the property of *resource monotonicity*. In short, this property supposes that if the amount M to allocate increases, all other things being equal, each party should receive at least as much as he did initially.⁷² In other words, no applicant will be disadvantaged by an increase of the ceiling. By contrast, a reduction of the ceiling will not advantage any applicant, as a result of which any initial applicant can be expected to oppose a reduction of the ceiling.

Thus, whereas legal analysis constructs this legal provision in subsidy law as a corollary of the principle of legal certainty, allocation theory reveals the implicit assumption underlying this provision. As such, it explains the existing allocation rule. Moreover, allocation theory shows that this allocation rule may result in reverse effects if an allocation procedure does not satisfy this property of resource monotonicity.⁷³ This raises the question whether resource monotonicity is a property any allocation procedure should satisfy. Economic theory does not provide for a definitive answer to this question, but at least shows unexpected effects if an allocation procedure does not satisfy this property. Besides, the economic property of resource monotonicity shows what should be a consistent extension of this allocation rule: an *increase* of a subsidy ceiling is not problematic and therefore allowed, at least not from the perspective of the initial applicants, unless the allocation procedure is not resource monotone. Insofar, allocation theory has predictive power: applicants should consider the possibility of the ceiling being increased during the allocation procedure. Finally, allocation theory shows the relationship between this property and other properties of allocation procedures. In particular, if an allocation procedure satisfies the properties of impartiality and population monotonicity, holding that an increase in the number of applicants N will not be to the advantage of any initial applicant, this procedure satisfies the property of resource monotonicity as well.⁷⁴ Therefore, any coherent legal system that requires allocation procedures to be impartial and population monotone, should require these procedures to be resource monotone as well.

Once we shift our attention from the ceiling M to the allocation procedure P , allocation theory explains why a legal provision permitting for amendments to the allocation procedure is lacking in subsidy law: any amendment to the allocation procedure benefiting certain applicants, will harm other applicants without doubt, given the limited availability of rights. Therefore, it should be not surprising that the Court prohibits the allocation criteria being amended in any way during the allocation procedure.⁷⁵ Again, economic allocation properties explain the existence (and absence) of general allocation rules.

6 Allocation beyond limited public rights?

The previous section showed how allocation theory can contribute to a consistent extension of the Court's corollary approach under which general allocation rules are constructed as a corollary of general legal principles. The next question is whether this allocation perspective may be relevant outside the area of limited public rights as well. At first glance, the answer to this question seems to be negative: exactly because the above-mentioned allocation rules are tailor-made for an allocation context, e.g. by explicit references to ceilings and allocation procedures, they seem to be irrelevant outside this allocation context. On second thought, however, it should be realized that any scheme of public rights, irrespective whether these rights are limited in number or not, has a distributive effect: if an applicant does not satisfy the predetermined granting criteria, he will not be awarded the public right at issue.⁷⁶ This distributive effect of granting criteria is very clear for the requirement that a fee is being paid: the higher the fee, the smaller the number of interested parties. Moreover, such a fee contributes to efficiency in the sense that all applicants satisfying the granting criteria, assign a value to this right at least equal to this fee. The distributive effect of other granting criteria, e.g. the condition that a right shall be rejected 'in the interest of public health', is less clear from the outset. However, an allocation perspective to public law may urge public authorities to unveil the allocative effect of such granting criteria and require them to restate the granting criteria in a more precise manner, for example by making explicit the maximum following from a granting criterion like 'public health'.⁷⁷ Until now, public law is somewhat ambiguous towards this unveiling process. Although it is settled case-law that all granting criteria should be clear and objective,⁷⁸ the Court has considered as well that too explicit granting criteria may result in too restrictive requirements, since it may be difficult to specify precise thresholds in advance without introducing a degree of rigidity likely to be even more restrictive of a fundamental freedom.⁷⁹

Once this distributive effect of other, non-limited schemes of public rights is identified, consequent allocation rules become relevant. For example, a broad interpretation of the condition that an authorisation shall be rejected in the interest of 'public health', amounts to the establishment of a small maximum. Next, changing the rules after the receipt of applications in a non-limited authorization scheme can be just as detrimental as changing those rules in a limited authorization scheme. With reference to the allocation property of resource monotonicity, it can be claimed that a change afterwards in the interpretation of a granting criterion should not disadvantage applications previously submitted. Furthermore, if there is indeed an (implicit) limit to the extent in which a certain activity is being permitted or supported, then the lack of making this ceiling explicit may amount to an implicit choice for allocation in the order of receipt of the allocations. In particular, an applicant may find himself confronted with his application being rejected in the interest of 'public health', because 'public health' would not bear any new entrant. Perhaps, other allocation procedures would have been more appropriate in securing the attainment of 'public health' and therefore should be preferred to 'first come, first served' allocation. Anyway, economic theory might provide for an answer to this suitability issue, more than legal doctrine.

Finally, it is worth mentioning the interaction between allocation of limited public rights and higher-level allocation in public law. In fact, this interaction reflects the interaction in political theories on distributive justice between local or micro justice, dealing with the allocation of a scarce good in a particular

setting, and global or macro justice, concerning the allocation of scarce goods and burdens over society as a whole.⁸⁰ It should be realized that limited availability of resources (water, soil, frequencies, money) does not need to result in a scheme of limited public rights. Instead, the allocation of such limited resources may take place at a higher level by assigning alternative modes of use to different parts of this scarce resource.⁸¹ The relevant issue then becomes which allocation rules and principles apply to this process of higher-level allocation. Allocation theory might be helpful in developing these higher-level allocation rules, since public law is confronted again with the tension between unlimited ends and limited means, which is at the core of economic theory.

7 Concluding remarks

Although public law is sometimes said to deal with issues of distributive justice, an allocation perspective is usually lacking in the legal analysis of public law. Nevertheless, these allocation issues arise manifestly in case of so-called 'limited public rights': if the number of public rights available for grant is limited to a maximum and if the number of applicants satisfying the granting criteria exceeds this maximum, an allocation procedure should be applied in order to award those scarce rights. From the perspective of general public law, the relevant question is which general allocation rules apply to these allocations of limited public rights.

The Court's case-law shows an approach under which general allocation rules are constructed as a direct consequence or 'corollary' of general legal principles, such as the principle of legal certainty and the principle of equal treatment. This approach of translating general legal principles into general allocation rules is rather arbitrary and fragmentary until now. This article shows that economic theory is helpful in expanding this legal 'corollary approach' in a consistent manner. First of all, some elements of general principles of law, e.g. the suitability requirement as part of the principle of equality, ask for a non-legal evaluation of allocation procedures, which can be provided for by economic theory. Next, the rationality assumption which is at the heart of (parts of) economic theory, has been central to some existing allocation rules. As a consequence, economic theory can explain these allocation rules. However, by explaining those rules, economic theory shows at the same time their limits by revealing underlying economic assumptions and properties of allocation procedures. As far as these assumptions and properties are accepted, economic theory provides for logical arguments why public law should accept other allocation rules that derive from these assumptions as well, even though these other rules have not been established in legislation or case-law until now. Otherwise, allocation law would not be a consistent and coherent part of public law anymore.

Although this allocation-theoretic approach is not able to account for all allocation rules which have been developed in case-law, it gives at least a solid framework for a consistent analysis of many allocation rules. What is more, this allocation-theoretic analysis of rules with respect to the allocation of limited public rights might have a spillover effect towards a general legal analysis of public law from the perspective of distributive justice. In particular, economic theory provides for the tools to unveil the allocation issues that are central to public law, but hidden in its analysis until now.

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Noten

1 Robbins 1952, p. 16.

2 See among others Rawls 1971, Waltzer 1983, and Elster 1992.

3 Radbruch 1973, p. 122.

4 Cherednychenko 2007, p. 32ff., provides for an overview of this criticism.

5 See in general Weinrib 1995, p. 56ff., and with respect to contract law Cherednychenko 2007, p. 37ff.

6 Van Ommeren 2011, p. 98-100.

7 In this contribution, the terms 'allocative' and 'distributive' are used synonymously.

8 Schuyt 2011, p. 128, and Van Ommeren 2011, p. 100-105.

9 Schuyt 2011, p. 130-131 and 162, and Van Ommeren 2011, p. 107.

10 E.g., the number of radio frequencies available for broadcasting or mobile communications is limited to a maximum, while the financial budget for

subsidizing activities is usually also restricted to a maximum.

11 See, e.g. Case C-496/99 P *Commission v CAS Succhi di Frutta* [2004] ECR I-3801, para. 111, referring to ‘reasonably informed tenderers exercising ordinary care’.

12 Cf. Posner 2007, p. 25.

13 Robbins 1952, p. 24.

14 Art. 4:22 of the Dutch General Administrative Law Act (GALA) defines a ‘subsidy ceiling’ as ‘the maximum amount available during a given period for the provision of subsidies under a given statutory regulation’. See also Van Ommeren 2004, p. 2, with regard to an ‘authorisation ceiling’.

15 See also Wolswinkel 2009.

16 See for these conceptual preliminaries Elster 1992, p. 21-22.

17 Weinrib 1995, p. 62.

18 Cf. Radbruch 1973, p. 122, stating that distributive justice needs at least three persons and results in subordination.

19 An exception is Art. 12 Service Directive (Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market, *OJ* 2006, L 376/36), which contains some provisions on service authorizations the number of which is limited because of the scarcity of available natural resources or technical capacity.

20 Cf. Art. 10(5) Services Directive: ‘The authorisation shall be granted as soon as it is established, in the light of an appropriate examination, that the conditions for authorisation have been met.’

21 Hereinafter: the Court.

22 Joined Cases C-72/10 and C-77/10 *Costa and Cifone* [2012] ECLI:EU:C:2012:80, para. 74.

23 Case C-336/12 *Manova* [2013] ECLI:EU:C:2013:647, para. 30; Joined Cases C-21/03 and C-34/03 *Fabricom* [2005] ECR I-1559, para. 27; Case C-127/07 *Arcelor Atlantique et Lorraine et al.* [2008] ECR I-9895, paras 23 and 47.

24 Art. 18 TFEU.

25 See Art. 26ff. TFEU.

26 See, e.g. Case C-458/03 *Parking Brixen* [2005] ECR I-8585, para. 48, with reference to Case 810/79 *Überschär* [1980] ECR 2747, para. 16, and Case C-3/88 *Commission v Italy* [1989] ECR 4035, para. 8.

27 See in particular Sloot 1986, p. 26-29.

28 See, e.g. Gerards 2002, p. 9-10.

29 See also Perelman 1977, p. 36.

30 Case C-539/11 *Ottica New Line* [2013] ECLI:EU:C:2013:591, paras 34 and 35. See also Joined Cases C-570/07 and C-571/07 *Blanco Pérez and Chao Gómez* [2010] ECR I-4629, paras 64, 70 and 78.

31 See into more detail on transparency Buijze 2013.

32 Case C-496/99 P *Commission v CAS Succhi di Frutta* [2004] ECR I-3801, para. 111.

33 This obligation of transparency applies to public contracts (see the detailed rules on advertising and transparency in Chapter VI of Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, *OJ* 2004, L 134/114), concessions (Case C-324/98 *Telaustria and Telefonadress* [2000] ECR I-10745, paras 60 and 61), financial grants (Case T-297/05 *IPK International v Commission* [2011] ECR II-1859, paras 122 and 123) as well as authorizations (Case C-203/08 *Sporting Exchange* [2010] ECR I-4695, para. 46).

34 Case C-203/08 *Sporting Exchange* [2010] ECR I-4695, para. 41.

35 Case C-231/03 *Coname* [2005] ECR I-7287, para. 19.

36 Art. 49 TFEU (ex Art. 43 EC).

37 Art. 56 TFEU (ex Art. 49 EC).

38 Joined Cases C-72/10 and C-77/10 *Costa and Cifone* [2012] ECLI:EU:C:2012:80, para. 92.

39 Coase 1959 and Coase 1960.

40 See for an overview Thomson 2007.

41 See, e.g. Krishna 2002, Börgers & Van Damme 2004, and Maasland & Onderstal 2006.

42 Thomson 2001, p. 358-359.

43 As far as resource allocation theory includes these strategic considerations, then auction theory can be considered part of allocation theory.

44 See more extensively on this assumption Korobkin & Ulen 2000.

45 See Osborne 2004, p. 4-7.

46 Osborne 2004, p. 8off. and 291ff.

47 Holt & Sherman 1982.

48 Che 1993.

49 Krishna 2002, p. 3-4.

50 Goeree & Offerman 2003, p. 598.

51 Krishna 2002, p. 16-17.

52 Krishna 2002, p. 15.

53 Krishna 2002, p. 5-6.

54 Maasland & Onderstal 2006, p. 210-215.

55 See Maasland & Onderstal 2006, p. 205.

56 Cf. Janssen & Moldovanu 2004, p. 132-134. See more extensively Janssen & Karamychev 2010.

57 Case C-496/99 P *Commission v CAS Succhi di Frutta* [2004] ECR I-3801, para. 111, Case C-231/03 *Coname* [2005] ECR I-7287, para. 21, and Joined Cases C-72/10 and C-77/10 *Costa and Cifone* [2012] ECLI:EU:C:2012:80, para. 73.

58 Elster 1992, p. 71.

59 An allocation is not efficient if the allocating authority keeps the rights, while assigning zero value to them ($v = 0$).

60 Cf. Art. 2:4 GALA.

61 Young 1994, p. 32.

62 See, e.g. Case C-240/07 *Commission v Italy* [2007] ECR I-7083, para. 35.

63 Art. 13 Directive 2002/20/EC of the European Parliament and of the Council of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive), *OJ* 2002, L 108/21.

64 Case C-375/11 *Belgacom and Others* [2013] ECLI:EU:C:2013:185, para. 50.

65 Case C-375/11 *Belgacom and Others* [2013] ECLI:EU:C:2013:185, para. 52. According to the opinion of the advocate general in this case, the fixing of fees for authorizations by reference to the sums determined at auction, is even a method *par excellence* of determining the value of the frequencies, not least because it amounts to a *direct reflection* of their market value (see para. 56 of the opinion of advocate general Jääskinen, delivered on 25 October 2012, in Case C-375/11).

66 Case C-73/08 *Bressol and Others* [2010] ECR I2735, para. 81.

67 See in the Dutch case-law Administrative High Court for Trade and Industry 8 January 2010, ECLI:NL:CBB:2010:BL3125, and Administrative Jurisdiction Division of the Council of State 6 June 2012, ECLI:NL:RVS:2012:BW7592.

68 This allocation rule is semi-general, since it applies to the grant of all limited subsidies, but not to all limited public rights.

69 Art. 4:27(2) GALA.

70 Art. 4:27(1) GALA.

71 See the Dutch parliamentary papers: *Kamerstukken II* 1993/94, 23700, 3, p. 49.

72 Thomson 2003, p. 270.

73 E.g., if a right gives access to a monopolistic instead of a duopolistic market, then some party may welcome a decrease of the ceiling, given her expected profits in the monopolistic aftermarket. Cf. Administrative Jurisdiction Division of the Council of State 6 June 2012, ECLI:NL:RVS:2012:BW7592.

74 Herrero 2008, p. 14-15.

75 Case C-448/01 *EVN and Wienstrom* [2003] ECR I-14527, para. 93.

76 Cf. Joined Cases C-570/07 and C-571/07 *Blanco Pérez and Chao Gómez* [2010] ECR I-4629, para. 54, with regard to authorization schemes.

77 See to some extent Case C-470/11 *SIA Garkalns* [2012] ECLI:EU:C:2012:505, para. 42, in which the obligation of transparency is applied to authorization schemes in general.

78 See for example Case C-567/07 *Sint Servatius* [2009] ECR I-9021, para. 37, and Case C-539/11 *Ottica New Line* [2013] ECLI:EU:C:2013:591, para. 52. See also Art. 10 Services Directive.

79 See, e.g. Case C-400/08 *Commission v Spain* [2011] ECR I-1915, para. 117, and Joined Cases C-570/07 and C-571/07 *Blanco Pérez and Chao Gómez* [2010] ECR I-4629, para. 96.

80 See more extensively Elster 1992, p. 4 and 184ff., and Young 1994, p. 6-7.

81 See also Van Ommeren 2004, p. 72. E.g., telecommunications law distinguishes between ‘allocation’, being frequency distribution to services (broadcasting, mobile communications, etc.), and ‘assignment’, being frequency distribution to individual undertakings. See Art. 1 ITU Radio Regulations 2012.